

Aeromedical Evacuation Technician Course  
(B3AZY4N0X1-000)

Flight Nurse Course  
(B30LY46F1-000)

Pre-Course Study Guide



## **PURPOSE OF STUDY GUIDE**

This STUDY GUIDE (SG) was designed to help you through your pre-course study assignments. The SG provides information necessary to complete the appraisals at the end of each unit. Together, the SG and appraisals will aid you in understanding the teaching points for each assignment.

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## **CHAPTER 1**

### **AE HISTORY**

**OBJECTIVE:** Know basic facts about Aeromedical Evacuation history.

**SAMPLES OF BEHAVIOR:**

1. State milestones revolving around Flight Nursing /AET history
2. State facts about the School of Aeromedical Evacuation
3. Recognize aircraft that were used for AE during past conflicts
4. Recall the impact that AE had on several conflicts

### **INTRODUCTION**

Aeromedical evacuation has a long history of success. AE crews throughout history made significant contributions in patient outcomes during times of peace and war. The concept of flying patients on fixed wing aircraft dates back to the early 1900s and has evolved rapidly since then. This chapter will identify individuals, aircraft, and operations that significantly contributed to the development of patient airlift.

### **THE SCHOOL OF AIR EVACUATION (1942 - Present)**

General David Grant established the first School of Air Evacuation in 1942 at Bowman Field Kentucky graduating the first class on 18 February 1943. The initial 4-week course was later expanded to 21 duty days and included topics in: Military Indoctrination, AE Nursing Principles, Survival Tactics, AE Tactics, Aeromedical Physiology, Aircraft Loading Procedures, and Mental Hygiene related to flying. The current course curriculum includes many of these same topics.

In 1944, the School of Air Evacuation moved to Randolph Field, Texas and became a critical part of the School of Aviation for Flight Surgeons, Flight Nurses, and Medical Technicians. The school fell under the control of the United States Air Force following the birth of that service in 1947. In 1959, the course moved to its current location at Brooks AFB (now Brooks City-Base) Texas.

### **WORLD WAR II (1941 – 1945)**

The Second World War was marked by the service of 56,793 nurses with 32,500 nurses deployed to overseas theaters. Among the deployed nurses, 67 became Japanese held POWs. A total of 16 lost their lives from enemy action. Six nurses died in action on the beachhead at Anzio Italy, when German Luftwaffe dive bombers strafed a tented hospital area. In 1944, US Army Nurse Aleda E. Lutz of Freeland Michigan was the first US military woman to die in a combat zone during WWII when her hospital plane went down on her 196<sup>th</sup> rescue mission. In all, more than 400 military women lost their lives

during WWII. More than 1,400 of the nurses who served during WWII were recognized for their service and contribution in this bloody campaign and were awarded some of the nation's highest military honors.

Flight nursing was introduced during WWII in 1943 as part of the previously established 1<sup>st</sup> AE Ambulance Squadron. At the peak of the war, Army Air Corps flight nurses moved over 100,000 patients each month. The high number of casualty movements required the Army to establish routine AE routes and establish the first transoceanic AE missions to bring the wounded and sick home to the United States. AE airlift during WWII was provided by: C-47, C-14, C-46, and C-87 aircraft. The C-47 would remain the backbone to AE transport throughout WWII.

“We evacuated almost everyone from our forward hospital by air, and it has unquestionably saved hundreds of lives – thousands of lives”

General Dwight D. Eisenhower, 1945

### **KOREAN WAR (1950 – 1955)**

The early days of the Korean War caught the US military with a downsized and aging AE infrastructure. Early battle casualties quickly taxed the WWII era tactics and resources that were initially employed. During the first six months of the war, more than 30,000 patients required evacuation by air. AE patient movement during the war peaked in January 1951 with 10,450 patients evacuated by air.

Technological advances during the Korean War saw the first widespread use of Army helicopters for MEDEVAC and Air Force jet aircraft for fixed-wing AE. These new resources decreased casualty transport times and boosted casualty survival rates. By the end of the war, a robust AE system was not only capable of moving casualties within the combat theater (intratheater AE), but from the combat theater back to CONUS (intertheater AE). AE airlift during the Korean War was provided by: C-54, C-46, C-47, C-142, and the newly introduced C-130A (1955).

In 1957, the Air Force received the first aircraft used exclusively for AE, the C-131 Samaritan. The C-131 could be configured for 27 litters, 40 ambulatory patients, or several combinations of both. The C-131 proved a solid platform in evacuating 500 wounded French soldiers from Indochina to France during America's early involvement in the Vietnam conflict.

### **VIETNAM (1964 – 1973)**

The AE system saw the introduction of the C-141 Starlifter in 1965 and the C-9A Nightingale in 1968. Like the C-131, the C-9A was exclusively used for AE. The twin jet engine C-9A could be configured to accommodate 40 litter patients, 40 ambulatory patients, or several combinations of both. In May 1968, 154 AE missions moved more than 12,000 patients. More than 600 patients were air evacuated following the Tet Offensive in 1968. An all time daily high of 711 patients were moved out of Vietnam on

March 11, 1969. In 1969, the monthly average for patient air evacuations stood at over 11,000.

In 1975, President Ford pledged that 2,000 Vietnamese orphans, many fathered by American troops, would be brought to the United States. The airlift, named Operation BABY LIFT, began on 4 April 1975. A C-5A Galaxy with a five member AE crew from Clark AB in the Philippines was sent to evacuate 328 orphans and attendants. Shortly after takeoff, the aircraft had a rapid decompression that forced a crash landing in a rice paddy outside of Saigon. Capt Mary Therese Klinker, a flight nurse and at least 180 children, aircrew, and attendants were killed in the crash. Capt Klinker was posthumously awarded the Airman's Medal for Heroism and the Meritorious Service Medal. While there were 176 survivors, the disaster resulted in the largest loss of life during an AE mission.

### **TENERIFE DISASTER (27 Mar 1977)**

A terrorist bomb blast at the departure lounge of Los Palmas Airport in Gran Canary Island diverted two jumbo jets to the smaller Los Rodeos Airport on Tenerife Island (Canary Islands). Taxiing in fog on the runway, a Pan American B-747 collided with a Dutch National KLM airline B-747. Both aircraft erupted in a ball of fire that killed all 249 passengers and crew onboard the KLM aircraft.

While 60 injured survivors did emerge from the Pan American jet, 334 onboard that day were killed. Having claimed 583 lives, the disaster at Tenerife was the largest loss of life from an aviation disaster until the terrorist attacks on the United States on 11 Sep, 2001. The United States responded to the Tenerife disaster by sending Active Duty, Air Force Reserve, and civilian AE crews to assist in the management of casualties.

### **DESERT STORM (16 Jan 1991 - 27 Feb 1991)**

On 16 January 1991, the United States responded to the Iraqi invasion and occupation of Kuwait by kicking off Operation DESERT STORM. AE played a major role in the theater evacuation of patients; the vast majority of which were non-battle injuries. Air Force planners anticipated numerous battle casualties, but the rapidity of the war and a quick resolution ensured casualty numbers remained low. Coalition casualties were so light that the staff at Air Force contingency hospitals in Europe, and their counterparts in the Arabian Peninsula, practiced little combat medicine. From August 1990 to March 1991, disease and non-battle injuries accounted for most of the patients generated from the combat theater. Aggressive preventive medicine remained effective in minimizing deaths from disease. Orthopedic and sports injuries accounted for about 43 percent of the evacuees from the combat theater.

### **KOREAN AIRLINE DISASTER (5 Aug 1997)**

On August 5<sup>th</sup> 1997, a Korean Airlines B-747 crashed in Guam. There were 269 fatalities and only 29 survivors. Shortly after the crash, AE crews were launched from

Yokota AB, Japan to move the survivors to Japan, Korea and Tripler Army Medical Center in Hawaii. Within 24-hours, many of the injured survivors were safely delivered to definitive care.

## **OPERATIONS ENDURING FREEDOM AND IRAQI FREEDOM (7 Oct 2001 – Present)**

After September 11<sup>th</sup>, 2001, the United States declared war on terrorism. With the Operations in Afghanistan, Iraq, and countless other regions of the world, the DoD had once again relied on the AE system to bring its wounded to definitive care. This time, the AE system has relied on non-dedicated airframes to accomplish its mission through the utilization of “back-haul” missions. These missions fly cargo, food, medicine, and ammunition into a combat zone and return back with patients on board. Described here is the very same method used during WWII. Throughout these Operations, AE has seen the conception and birth of many fundamental changes including, but not limited to: new electrical converters, use of re-fueling aircraft, complete change in portable oxygen systems, all new instructional references, etc. No matter what the future has in store for AE one thing is for sure, it will be ready.

## **THE PATH INTO THE FUTURE**

Air transportation has remained the armed forces primary method of moving patients since 1949. Fast and reliable, AE allows for the movement of stabilized patients to centralized medical care. Modern warfare has evolved into a process capable of generating large numbers of casualties in a short period of time that can quickly overwhelm local medical facilities. Battle casualties require immediate stabilization and transportation to decrease morbidity and mortality. The terrorist bombing of the U.S. Marine barracks in Beirut, the 1989 military action in Panama (Operation JUST CAUSE), the Al Qaeda terrorist attacks on 11 September 2001, and the current war in Afghanistan and Iraq are recent examples where stabilized casualties were transported by our AE system. Planning for the future enabled AE to expand its critical care capabilities by employing Critical Care Air Transport Teams (CCATT) and specialized medical augmentees. Today, Air Mobility Command is the lead command for AE and provides guidance, concepts of operation, and doctrine to 4 active duty and 27 Air Reserve Component AE squadrons. The AE system remains on worldwide alert 24/7 for disaster and contingency operation response.

### **Appraisal 1-1**

Answer the following problems. If you cannot complete the problems, review the study portion and make another attempt.

1. What year did the first Flight Nurse Course graduate?
2. Name four aircraft used for AE during WWII.
3. What was the first aircraft designed strictly for AE?
4. Who was the flight nurse that died while carrying out Op BABY LIFT?
5. What incident took place in Tenerife, March 1977?

## **CHAPTER 2**

### **ZULU TIME**

**OBJECTIVE:** Understand the term Zulu time and be able to convert local time to Zulu time and back again

**SAMPLES OF BEHAVIOR:**

1. Define the term Zulu time
2. State the purpose of Zulu time
3. Recognize the division of world time zones
4. Describe the use of Daylight Savings Time
5. Compare local time to the correct Zulu time
6. Describe how to document local and Zulu times

### **INTRODUCTION**

Today's USAF is constantly on the go executing non-stop operations. The Air Force employs air power for offensive operations, supply missions, humanitarian relief operations (HUMRO), and aeromedical evacuation (AE). Tracking operations on a global scale is critical to delivering bombs on target and administering top-notch, skilled care to patients during flight. Therefore, our military has adopted a standard, or universal, 24 hour time that is consistent no matter where you are located. This time is referred to as Zulu time, or Z time.

### **INFORMATION**

Command and control elements, flying crews, and allied militaries frequently interchange the terms Zulu time (Z time), Greenwich Mean Time (GMT) and Coordinated Universal Time (UTC). Each of these terms refers to Zulu time. Zulu time is equivalent to GMT; named after the village of Greenwich, England, which is on the Prime Meridian (or 0 longitude). Z time is a crucial tool in avoiding confusion when crossing time zones by standardizing global time in the flying community. Z time ensures continuity of patient care no matter where the deplaning station might be.

Time zones throughout the world are divided from -12 to +12 Zulu time. Determination of Z time has been simplified with the utilization of the attached Zulu Time checklist. Time zones are divided in columns in -12 to +12 increments; Z time is located at the center. To determine Z time from points west, subtract numbers according to the chart; the reciprocal applies to determining Z time from points east.

### **DAYLIGHT SAVINGS TIME**

Within the continental United States (CONUS), daylight savings time may be a factor in determining Z time. In time zones that are observing the daylight savings, an hour

must be added to local times listed on the standard Zulu Time chart found in the AE aircrew checklist.

## **DOCUMENTATION**

When utilizing Z time, aircrew members must exercise strict documentation guidelines for continuity of patient care in the AE system. In the AE system, charting of patient assessments, nursing care, administration of medications, administration of treatment, and all nursing interventions and outcomes are documented both in Zulu (Z) time and local (L) time. The local time documented is local time at the patient's *deplaning* station.

For example: A patient is enplaned at Ramstein AB, Germany and is transported to Andrews AFB, MD (Andrews AFB falls under the CONUS Eastern Time Zone). The Flight Nurse (FN) gave a medication at 0200 Z. The FN's documentation for this patient will reflect both Z time and the local time at the patient's deplaning station (Andrews AFB). Referring to the Zulu Time Chart, the FN will document time as, "0200Z / 2100L". AFI 41-307 and the AMC Forms Guide provide additional guidance on documentation.

## **SUMMARY**

Zulu is a standard global time that enables travelers to coordinate operations and ensure consistency. AE uses Z time to document care administered to patients during the patient movement process. AE crewmembers must be able to utilize the Zulu Time Chart and will document care in both Z time and the Local time at the patient's deplaning station. An additional conversion may be needed for Daylight Savings Time.

## Appraisal 2-1

Answer the following problems using the Zulu Time Chart. If you have difficulty with the problems, review the narrative portion of the study guide.

1. How many hours are added to **Local** time to accommodate Daylight Savings?
2. It is 0800L Hawaii time. What is the Z time?
3. A medication was given to a patient during flight at 2100 Z. This patient will deplane at Kadena AB, Japan. What is the local time at the deplaning station that the medication was given?
4. You report to your squadron (Scott AFB, Ill.) at 1300 Z, during Daylight Savings Time. What time locally did you report?
5. You are flying a mission from Germany to Andrews AFB. The local time in Germany is 0800. What are the local deplaning and Z times?

# ZULU TIME CHART

-12	-11	-10	-9	-8	-7	-6	-5	-4	-1	GMT	+1	+2	+3	+4	+5	+5:3	+7	+8	+9	+9:3	+10	+12
New Zealand	Midway	Hawaii	Elmendorf	PST (US)	MST (US)	CST (US)	EST (US)	Puerto Rico	Azores	Ireland England	Germany Italy Spain	Turkey Greece Egypt	Bahrain	Tehran	Karachi	New Delhi	Thailand	Taiwan Philippines	Japan Korea	Alice Springs (AUS)	Guam Richmoud (AUS)	New Zealand
0600	070	0800	0900	1000	1100	1200	1300	1400	1700	1800	1900	2000	2100	2200	2300	2330	0100	0200	0300	0330	0400	0600
0700	080	0900	1000	1100	1200	1300	1400	1500	1800	1900	2000	2100	2200	2300	2400	0030	0200	0300	0400	0430	0500	0700
0800	090	1000	1100	1200	1300	1400	1500	1600	1900	2000	2100	2200	2300	2400	0100	0130	0300	0400	0500	0530	0600	0800
0900	100	1100	1200	1300	1400	1500	1600	1700	2000	2100	2200	2300	2400	0100	0200	0230	0400	0500	0600	0630	0700	0900
1000	110	1200	1300	1400	1500	1600	1700	1800	2100	2200	2300	2400	0100	0200	0300	0330	0500	0600	0700	0730	0800	1000
1100	120	1300	1400	1500	1600	1700	1800	1900	2200	2300	2400	0100	0200	0300	0400	0430	0600	0700	0800	0830	0900	1100
1200	130	1400	1500	1600	1700	1800	1900	2000	2300	2400	0100	0200	0300	0400	0500	0530	0700	0800	0900	0930	1000	1200
1300	140	1500	1600	1700	1800	1900	2000	2100	2400	0100	0200	0300	0400	0500	0600	0630	0800	0900	1000	1030	1100	1300
1400	150	1600	1700	1800	1900	2000	2100	2200	0100	0200	0300	0400	0500	0600	0700	0730	0900	1000	1100	1130	1200	1400
1500	160	1700	1800	1900	2000	2100	2200	2300	0200	0300	0400	0500	0600	0700	0800	0830	1000	1100	1200	1230	1300	1500
1600	170	1800	1900	2000	2100	2200	2300	2400	0300	0400	0500	0600	0700	0800	0900	0930	1100	1200	1300	1330	1400	1600
1700	180	1900	2000	2100	2200	2300	2400	0100	0400	0500	0600	0700	0800	0900	1000	1030	1200	1300	1400	1430	1500	1700
1800	190	2000	2100	2200	2300	2400	0100	0200	0500	0600	0700	0800	0900	1000	1100	1130	1300	1400	1500	1530	1600	1800
1900	200	2100	2200	2300	2400	0100	0200	0300	0600	0700	0800	0900	1000	1100	1200	1230	1400	1500	1600	1630	1700	1900
2000	210	2200	2300	2400	0100	0200	0300	0400	0700	0800	0900	1000	1100	1200	1300	1330	1500	1600	1700	1730	1800	2000
2100	220	2300	2400	0100	0200	0300	0400	0500	0800	0900	1000	1100	1200	1300	1400	1430	1600	1700	1800	1830	1900	2100
2200	230	2400	0100	0200	0300	0400	0500	0600	0900	1000	1100	1200	1300	1400	1500	1530	1700	1800	1900	1930	2000	2200
2300	240	0100	0200	0300	0400	0500	0600	0700	1000	1100	1200	1300	1400	1500	1600	1630	1800	1900	2000	2030	2100	2300
2400	010	0200	0300	0400	0500	0600	0700	0800	1100	1200	1300	1400	1500	1600	1700	1730	1900	2000	2100	2130	2200	2400
0100	020	0300	0400	0500	0600	0700	0800	0900	1200	1300	1400	1500	1600	1700	1800	1830	2000	2100	2200	2230	2300	0100
0200	030	0400	0500	0600	0700	0800	0900	1000	1300	1400	1500	1600	1700	1800	1900	1930	2100	2200	2300	2330	2400	0200
0300	040	0500	0600	0700	0800	0900	1000	1100	1400	1500	1600	1700	1800	1900	2000	2030	2200	2300	2400	0030	0100	0300
0400	050	0600	0700	0800	0900	1000	1100	1200	1500	1600	1700	1800	1900	2000	2100	2130	2300	2400	0100	0130	0200	0400
0500	060	0700	0800	0900	1000	1100	1200	1300	1600	1700	1800	1900	2000	2100	2200	2230	2400	0100	0200	0230	0300	0500

## **CHAPTER 3**

### **AE OXYGEN ADMINISTRATION**

**OBJECTIVE:** Know therapeutic oxygen sources used on an AE mission and the variables used to calculate patient oxygen requirements on AE missions

#### **SAMPLES OF BEHAVIOR:**

1. Describe the different types of therapeutic oxygen used for AE missions
2. List the variables used to calculate therapeutic oxygen requirements

#### **INTRODUCTION:**

Oxygen (O<sub>2</sub>) is part of the air we breathe and is often considered the most widely prescribed drug in the pre-hospital and hospital environment. Furthermore, O<sub>2</sub> therapy is an invaluable tool in treating patients with acute and critical conditions. As an Aeromedical Evacuation Crew Member (AECM), you need to understand the specifics (i.e. different sources of O<sub>2</sub>, O<sub>2</sub> requirement calculations, etc...) associated with O<sub>2</sub> administration in the AE environment.

#### **INFORMATION:**

Working in a hospital, you are not concerned with calculating how much O<sub>2</sub> your patients will need since it is the responsibility of the facility manager to maintain adequate amounts of O<sub>2</sub> for the entire facility. However, in the AE environment, you are responsible for calculating the total O<sub>2</sub> requirement for the AE mission and must consider the O<sub>2</sub> sources that are available. Not only do you need to calculate how much oxygen that the patients require in the air (i.e. flight time to destination) but you need to leave enough oxygen to last while on the ground (i.e. awaiting takeoff, patient ground transportation, etc.). Also, the AE crew may want to take the initiative and set-up an emergency O<sub>2</sub> line. This line will be ready at all times and calculated for 15 lpm. In the AE environment, O<sub>2</sub> may be available as either gaseous O<sub>2</sub>, or liquid O<sub>2</sub> (LOX).

Gaseous O<sub>2</sub> is provided via portable O<sub>2</sub> cylinders. A list of the most common types of cylinders and their calculation formulas can be found in AFI 11-2AEV3 CL-2 page 7. The AE system is shifting away from the portable LOX systems and moving toward a portable gaseous system, the MOST (Mobile Oxygen Storage Tank). There is still a possibility that an AE crew may rely on a LOX system for O<sub>2</sub>, therefore it is important to understand the O<sub>2</sub> calculations concerning LOX. LOX is used for therapeutic purposes once it is converted into a gaseous state. LOX can be stored in portable containers or may be part of aircraft capabilities. One liter of LOX converts to 804 liters of gaseous O<sub>2</sub>. The C-17 and C-141 aircraft are equipped with an integral LOX system that will provide therapeutic O<sub>2</sub> to your patients. Aircraft like the C-130 do not have an integral therapeutic O<sub>2</sub> system; you must bring a portable LOX device called the Patient

Therapeutic Liquid Oxygen (PTLOX). The PTLOX holds up to 10 liters of LOX and will vent one liter of LOX every 24 hours. PTLOX units are considered full when they contain 8-10 liters of LOX.

## LIQUID OXYGEN REQUIREMENT CALCULATION FORMULA

To calculate therapeutic liquid oxygen requirements, you need to add the gaseous O<sub>2</sub> requirement in liters per minute for all patients. Multiply the value by 60 to calculate required liters per hour. Then multiply that value by the scheduled flight time in hours. Finally, divide the calculated value by 804 to calculate the liters of LOX required for the mission. Once you have calculated the necessary O<sub>2</sub> for the mission, you will need to add extra O<sub>2</sub> for any ground time. The AFI 11-2AE V3, CL-2 recommends 3 hours be calculated and added for ground time. The formula is as follows:

$$\frac{\text{Total LPM} \times 60 \times (\text{flight time} + \text{ground time})}{804} = \text{liters of LOX needed}$$

## GASEOUS OXYGEN REQUIREMENT CALCULATION FORMULA

The general conversion for gaseous O<sub>2</sub> cylinders is as follows:

$$\frac{(\text{Gauge pressure in PSI minus the duration of residual pressure}) \times \text{cylinder constant}}{\text{Flow rate in LPM}} = \text{flow in minutes}$$

Residual Pressure = 200 PSI

Cylinder Constants:

D = 0.16	G = 2.41
E = 0.28	H = 3.14
M = 1.56	K = 3.14

Example: Determine the life of an M cylinder that has a pressure of 2000 PSI and a flow rate of 10 LPM.

$$\frac{[(2000-200) \times 1.56]}{10} = \frac{(2808)}{10} = (281) \text{ minutes or 4 hrs and 41 minutes}$$

Remember, this is just the lifetime of the cylinder, the mission information was not taken into consideration here (i.e. flight or ground times).

## **SUMMARY**

It is essential that crewmembers know the different sources of oxygen used in the AE environment and how to calculate the entire mission's oxygen requirement. Remember, AE is an unforgiving environment for patient care, one that requires you have all the necessary tools needed to safely accomplish the mission.

### **Appraisal 3-1**

Answer the following problems. If you cannot complete the problems, review the study portion and use the oxygen calculations given, and make another attempt.

#### **Scenario:**

You have been tasked to fly an urgent mission on a C-130 aircraft. The C-130 does not have integral therapeutic O<sub>2</sub>. Your scheduled flight time is 6 hrs. Total anticipated ground time is 2 hours. The patient's oxygen requirements are as follows:

- Pt #1 has a face mask at 6 lpm
- Pt #2 has a nasal cannula at 4 lpm
- Pt #3 has a non-rebreather mask at 12 lpm
- MCD requested one additional line for possible medical emergencies at 15 lpm

1. How many liters of liquid oxygen do you need for the mission?
  
  
  
  
  
  
  
  
  
  
2. If given an H tank gaseous oxygen cylinder with 2200 PSI, would one tank be enough to supply the patients with the required oxygen for the entire mission? If not, how many H tank cylinders would the AE crew need to successfully complete the mission?

## **CHAPTER 4**

### **AE ABBREVIATIONS AND ACRONYMS**

**OBJECTIVE:** Understand and identify common abbreviations and acronyms used in aeromedical evacuation and the flying community.

#### **SAMPLES OF BEHAVIOR:**

1. Recognize the meanings of common abbreviations used in the AE system
2. Recognize the meanings of common acronyms used in the AE system

#### **INTRODUCTION/ INFORMATION**

Jargon and slang are commonly used in all career fields, with AE being no exception. As an aircrew member, you must be familiar with the approved acronyms and abbreviations that relate to your new field. AE acronyms periodically change, so you must stay on top of changes published to Air Force Instructions (AFIs), Flight Crew Information Files (FCIFs), Flight Crew Bulletins (FCBs), and Notice to All Airmen (NOTAMs), etc. The attached list will help you understand terminology used in AE operations.

#### **SUMMARY**

Aeromedical evacuation speaks many different languages, ranging from operational to patient care. It is vital that every crewmember understand and apply common abbreviations and acronyms utilized in the AE and flying community.

<b>AC</b> Aircraft Commander	<b>AFJMAN</b> Air Force Joint Manual
<b>ACLS</b> Advanced Cardiac Life Support	<b>AFMLO</b> Air Force Medical Logistics
<b>ACM</b> Additional Crew Member	<b>AFRC</b> Air Force Reserve Command
<b>AD</b> Active Duty	<b>AFSC</b> Air Force Specialty Code
<b>ADCON</b> Administrative Control	<b>AFTTP</b> AF Tactics, Techniques, And Procedures
<b>ADVON</b> Advanced Echelon	<b>AGE</b> Aerospace Ground Equipment
<b>AE</b> Aeromedical Evacuation	<b>ALCT</b> Airlift Control Team
<b>AECM</b> AE Crewmember	<b>ALS</b> Aircrew Life Support
<b>AECMC</b> AE Crew Management Cell	<b>AMC</b> Air Mobility Command
<b>AECOT</b> AE Contingency Operations Training	<b>AMCC</b> Air Mobility Control Center
<b>AEG</b> Air And Space Expeditionary Group	<b>AMCT</b> Air Mobility Control Team
<b>AELT</b> AE Liaison Team	<b>AMD</b> Air Mobility Division
<b>AES</b> AE Squadron	<b>AME</b> Air Mobility Element
<b>AESC</b> AE Support Cell	<b>AMOCC</b> Air Mobility Operations Control Center
<b>AET</b> AE Technicians	<b>ANG</b> Air National Guard
<b>AETF</b> Air And Space Expeditionary Task Force	<b>AOC</b> Air & Space Operations Center
<b>AEW</b> Air And Space Expeditionary Wing	<b>AOR</b> Area Of Responsibility
<b>AF</b> Air Force	<b>ARC</b> Air Reserve Component
<b>AFDD</b> Air Force Doctrine Document	<b>ARCT</b> Air Refueling Control Team
<b>AFFOR</b> Air Force Forces	<b>ASMT</b> AE Stage Management Team
<b>AFI</b> Air Force Instruction	<b>ASWG</b> Allowance Standard Work Group

<b>AFJH</b> Air Force Joint Handbook	<b>DIRMOBFOR</b> Director Of Mobility Forces
<b>AFJI</b> Air Force Joint Instructions	<b>DNBI</b> Disease And Non-Battle Injury
<b>ATLS</b> Advanced Trauma Life Support	<b>DNR</b> Do Not Resuscitate
<b>ATO</b> Air Tasking Order	<b>DO</b> Director Of Operations
<b>BLS</b> Basic Life Support	<b>DOD</b> Department Of Defense
<b>BMET</b> Bio-medical Equipment Technicians	<b>DODI</b> Department Of Defense Instruction
<b>BOS</b> Base Operating Support	<b>DOMS</b> Director Of Military Support
<b>C2</b> Command And Control	<b>DOS</b> Department Of State
<b>CAA</b> Civilian Air Ambulance	<b>DVA</b> Department Of Veterans Affairs
<b>CASEVAC</b> Casualty Evacuation	<b>EAES</b> Expeditionary AE Squadron
<b>CASF</b> Contingency Aeromedical Staging Facility	<b>EAS</b> Expeditionary Airlift Squadron
<b>CCATT</b> Critical Care Air Transport Team	<b>EMEDS</b> Expeditionary Medical Support System
<b>CHOP</b> Change Of Operational Control	<b>EMT</b> Emergency Medical Technician
<b>CMC</b> Crew Management Cell	<b>EPW</b> Enemy Prisoner Of War
<b>CMT</b> Charge Medical Technician	<b>EXORD</b> Execution Order
<b>COMAFFOR</b> Commander, Air Force Forces	<b>FCIF</b> Flight Crew Information File
<b>CONOPS</b> Concept Of Operations	<b>FN</b> Flight Nurse
<b>CONUS</b> Continental United States	<b>FS</b> Flight Surgeon
<b>CRAF</b> Civil Reserve Air Fleet	<b>GDSS</b> Global Decision Support System
<b>CW/BW</b> Chemical Warfare/Biological Warfare	<b>GMTF</b> Global Mobility Task Force
<b>DEPORD</b> Deployment Order	<b>GPMRC</b> Global Patient Movement Requirements Center
<b>HUMRO</b> Humanitarian Relief Operations	<b>MEFPAK</b> Manpower, Equipment, Force Packaging
	<b>MIL-STD</b> Military Standard

<b>IAW</b> In Accordance With	<b>MISCAPS</b> Mission Capabilities
<b>ICMOP</b> Integrated CONUS Medical Operations Plan	<b>MOU</b> Memorandum Of Understanding
<b>Intertheater</b> Movement Between Two Theaters Of Operations	<b>MRO</b> Medical Regulating Officer
<b>Intratheater</b> Movement Within One Theater Of Operations	<b>MSCA</b> Military Support To Civil Authorities
<b>ISS</b> In-System Select	<b>MTF</b> Medical Treatment Facility
<b>ITV</b> In-Transit Visibility	<b>MTW</b> Major Theater War
<b>IV</b> Intravenous	<b>NBC</b> Nuclear, Biological, & Chemical
<b>JFACC</b> Joint Force Air & Space Component Commander	<b>NCOIC</b> Non-Commissioned Officer In-Charge
<b>JFC</b> Joint Force Commander	<b>NDMS</b> National Disaster Medical System
<b>JFS</b> Joint Force Surgeon	<b>NE</b> Nurse Executive
<b>JPMRC</b> Joint Patient Movement Requirements Center	<b>NEO</b> Noncombatant Evacuation Operation
<b>JTF</b> Joint Task Force	<b>OEF</b> Operation ENDURING FREEDOM
<b>LOX</b> Liquid Oxygen	<b>OIC</b> Officer In Charge
<b>MA</b> Medical Attendant	<b>OIF</b> Operation IRAQI FREEDOM
<b>MAJCOM</b> Major Command	<b>OPCON</b> Operational Control
<b>MASF</b> Mobile Aeromedical Staging Facility	<b>OPLAN</b> Operation Plan
<b>MCD</b> Medical Crew Director	<b>OPORD</b> Operation Order
<b>MDS</b> Mission Design Series	<b>OSD</b> Office Of The Secretary Of Defense
<b>MEDEVAC</b> Medical Evacuation (Army)	<b>TPMRC</b> Theater Patient Movement Requirements Center
<b>PACAF</b> Pacific Air Forces	<b>TRAC2ES</b> USTRANSCOM Regulating C2 Evacuation System
<b>PAD</b> Patient Administration Director	<b>TTP</b> Tactics, Techniques & Procedures
<b>PIC</b> Pilot In Command	<b>USAFE</b> United States Air Forces In Europe

<b>PLS</b> Patient Loading System	<b>VSI</b> Very Seriously Ill
<b>PMCC</b> Patient Movement Clinical Coordinator	<b>WMD</b> Weapons Of Mass Destruction
<b>PMI</b> Patient Movement Items	<b>WOC</b> Wing Operations Center
<b>PMR</b> Patient Movement Request	
<b>PMRC</b> Patient Movement Requirements Center	
<b>POW</b> Prisoners Of War	
<b>PSP</b> Patient Support Pallet	
<b>RSV</b> Readiness Skill Verification	
<b>RTD</b> Return To Duty	
<b>SIMLM</b> Single Integrated Logistics Manager	
<b>SOF</b> Special Operations Forces	
<b>SOFME</b> SOF Medical Elements	
<b>TACC</b> Tanker/Airlift Control Center	
<b>TACON</b> Tactical Control	
<b>TAES</b> Theater Aeromedical Evacuation System	
<b>TDY</b> Temporary Duty	
<b>USAFSAM</b> USAF School Of Aerospace Medicine	
<b>USTRANSCOM</b> U.S. Transportation Command	
<b>UTC</b> Unit Type Code	
<b>VFS</b> Validating Flight Surgeon	

### Appraisal 4-1

Answer the following questions. If you cannot complete the questions, review the study portion on the study guide, review the AE Abbreviations and Acronyms chart, and make another attempt.

1. What is the abbreviation used for *Patient Movement Requirement Center*?
2. What does *PIC* stand for?
3. What does *TACC* stand for?
4. Your patients will be coming from an *MTF* to the aircraft. What is an *MTF*?
5. All of your patients' information was placed into *TRAC2ES* prior to them being moved. What does *TRAC2ES* stand for?
6. What does *MRO* stand for?

## **CHAPTER 5**

### **EVACUATION PRECEDENCE AND PATIENT MOVEMENT CLASSIFICATION**

**OBJECTIVE:** Describe a patient's status in the AE system using evacuation precedence and patient movement classifications.

#### **SAMPLES OF BEHAVIOR:**

1. Distinguish between evacuation precedence utilized in the AE system
2. List the different patient movement classifications
3. Define all patient movement classifications

#### **INTRODUCTION**

Understanding how patients are categorized for movement is essential to executing your duties as member of an Aeromedical Evacuation crew. Patients are categorized by evacuation precedence and movement classification to ensure they are moved within an appropriate amount of time and they are transported on a properly prepared aircraft by a crew who understands their status. By knowing the evacuation precedence and movement classifications of the patient, the AE crew will be able to properly plan for their mission.

#### **PATIENT EVACUATION PRECEDENCE**

The process of determining the categories of evacuation precedence (URGENT, PRIORITY, ROUTINE) will determine how quickly a patient will be evacuated within the patient movement system. It is determined at the originating facility and may be upgraded or downgraded at each succeeding level of patient care. This method of categorizing patients allows us to prioritize airlift assets and crews while ensuring continuity of operations as the patient is delivered to the appropriate care in a timely and efficient manner.

#### **U.S. AIR FORCE PATIENT MOVEMENT PRECEDENCE**

**URGENT:** Patients who must be moved immediately to save life, limb, or eyesight, or to prevent complication of a serious illness.

**PRIORITY:** Patients requiring prompt medical care that must be moved within 24 hours.

**ROUTINE:** Patients who should be picked up within 72 hours and moved on routine/scheduled flights.

## **PATIENT MOVEMENT CLASSIFICATION**

Patient Movement Classification designates a patient's status as either litter or ambulatory, based on diagnosis and ability to self-help in an emergency. These classifications are assigned by originating physician in coordination with the PMRC. The MCD may assign a higher classification, e.g. 2B to 2A if the patient's condition warrants the upgrade. The MCD may not downgrade a patient's classification.

### **AE PATIENT MOVEMENT CLASSIFICATIONS**

#### **Psychiatric:**

**1A** – Severely ill psychiatric patient, who requires close supervision, should arrive at the aircraft in hospital clothing, sedated, and restrained on a dressed litter.

**1B** – A moderate to severely ill psychiatric patient who is sedated, should wear hospital clothing, and is transported on a litter. Restraints are not applied but one set is secured to the litter or maintained by the patient's medical attendant.

**1C** – A cooperative, reliable, and moderately severe psychiatric inpatient traveling in ambulatory status, dressed in uniform or civilian clothes.

#### **Litter:**

**2A** – A litter patient who may not or cannot ambulate, and may be unable to perform self-care. Requires assistance in the event of an emergency. Travels in hospital clothing and may sit in a seat.

**2B** – A litter patient, usually dressed in hospital clothing, able to ambulate and sit in a seat, and should be able to ambulate unassisted in the event of an emergency.

#### **Ambulatory:**

**3A** – Inpatient non-psychiatric, non-substance abuse patient requiring medical treatment, assistance or observation en route (usually minimal), or returning from an inpatient visit at a medical facility.

**3B** – Recovering inpatient, returning to home station, and requires no medical attention enroute.

**3C** – Ambulatory drug or alcohol substance abuse inpatient going for treatment dressed in military or civilian clothing.

**Infant:**

**4A** - Infant, under 3 years of age, occupying a seat and going for treatment.

**4B** - Infant, under 3 years of age, occupying a seat and returning from treatment.

**4C** - Infant requiring an Airborne Life Support System (ALSS).

**4D** - Infant under 3 years of age on a litter.

**4E** - Outpatient under 3 years of age occupying a seat.

**Outpatient:**

**5A** - Outpatient ambulatory going for treatment. Does not require a litter or medical assistance during flight.

**5B** – Outpatient ambulatory drug or substance abuse patient going for treatment.

**5C** – Psychiatric outpatient going for treatment.

**5D** – Outpatient on litter for comfort or safety going for treatment.

**5E** – Returning outpatient on a litter for comfort or safety.

**5F** – Returning outpatient.

**Attendant:**

**6A** – Medical Attendant (MA). A physician, nurse, or technician who is assigned to provide specialized medical/nursing treatment en route through to the patient's destination facility.

**6B** – Non medical attendant (NMA).

**SUMMARY**

It is important to understand patient evacuation precedence and movement classifications. You will use these tools regularly throughout your aeromedical evacuation career to effectively plan and execute missions.

## **APPRAISAL 5-1**

Answer the following questions. If you cannot complete the questions, review the Evacuation Precedence and Patient Movement Classification section, and make another attempt.

1. What is the patient movement classification for a litter patient who may not or cannot ambulate, and may be unable to perform self-care?
2. What is the patient movement classification for an inpatient, non-psychiatric, non-substance abuse requiring medical treatment, assistance or observation en route (usually minimal), or returning from an inpatient visit at a medical facility?
3. What is a 6A in the patient movement classification system?
4. Define what a 1A patient is according to the patient movement classification system.
5. What evacuation precedence requires a patient to be moved within 24 hours?